

## ABSTRACT OF THE DISCLOSURE

The fuel cell system has a fuel cell unit and a catalytically active reactor unit (3) for at least partial chemical transformation of an operating medium stream (1), especially a reformer, gas purifier stage and/or a combustor, in which  
5 the catalytically active reactor unit (3) has a variable catalytically active reactor volume (4) acted on by the operating medium stream. To provide the fuel cell system with a higher efficiency and good dynamic behavior the catalytically active reactor unit is provided with at least one control device (5, 8, 11, 12, 13) for controlling and/or for changing the variable catalytically active reactor volume  
10 (4) acted on by the operating medium stream (1). In a preferred embodiment the control device includes a first valve (11) for the reactor unit arranged downstream of the maximum reactor volume and a second valve (12) connected with the reactor unit upstream of the first valve, so that, when the second valve is opened and the first valve is closed, the operating medium stream (1) passes through an  
15 effective reactor volume that is smaller than the maximum reactor volume.